4/30/'90

Monthly Progress Report for the Month of April

(1) To meet Frank's & connie's request the following thin sheets were prepared with a resistivity of 0.0038 ohm-in.

(a) 63 pcs of 3.0" long x 10 mm wide x 0.010" thick (BC 84)
(b) 43 pcs of 3.0" long x 10 mm wide x 0.010" thick (BC 85)

The above pieces were gold coated by Diane & were cut by Mary Reagan. The total number of pieces exceeded the request.

(2) About 60 pcs of pressed cylinders were made with a resistivity of 0.0044 ohm-in to EDM to different shapes and designs. These were made with alumina. The strengths of the pieces were abort 5000 to 5500 psi with a hardness of 50.

The above pieces could not be machined by EDM. also The ~~important~~ goal was to achieve the resistance and the strength at the ~~same~~ same time.

2020127827

(3) Green coke was used for both (1) & (2). chemical analysis showed abort 4.0% Sulphur and excessive amounts of Vanadium and Nickel. Due to the impurities, we had to change the carbon from Green coke to

Source: https://www.industrydocuments.ucsf.edu/docs/zygj0000

~~make~~ pure carbon.

(4) About two weeks were spent trying to figure out the baking schedule to pyrolyze flour to obtain ~~the~~ pure carbon.

(5) Thin sheets prepared with flour carbon under the same conditions as in (1) above resulted a sheet with an average resistivity of 0.0056 ohm-in. These sheets were ground to a thickness of 0.018" to obtain a 1.2 ohm-heater. This was primarily done to test ~~H~~ Hugh ~~M~~cafety's circuit.

(6) Thin sheets to duplicate as in (1) above for the purpose of understanding aerosol formation should arrive by May 7th or so. These should duplicate BC 84 & BC 85 samples that connie presently has.

(7) our experiments to obtain high resistance materials resulted a sample with a resistance of 0.056 ohm-in. The strength was 5500 psi and the density was 2.12 g/cc.

2020127828

(8) The starting mix of the above sample was 113 g of coke, 1560 g of Al_2O_3, 477 g of phenolic resin (binder) and 400 g of acetone.

Source: https://www.industrydocuments.ucsf.edu/docs/zygj0000

(9) Molding of I-beam pattern was attempted for the first time. The die was stuck due to the friction and was sent to the shop for machining. These experiments will continue from May 8th onwards. We also ordered another one.

(10) Extrusion of the Beta heater will be attempted during the month of May. A die has been ordered for this purpose. This ~~is done~~ will be carried out to have an option by October and also to carry out a feasibility study.

(11) About 150 8-array heaters were machined with different thicknesses and shapes to obtain the minimum thickness required for safe insertion into a socket. It is still not clear as to how to do this test in a meaningful way. We will start empirically and proceed forward towards optimizing the test.

2020127829

(12) Diane ordered some Indium wire and ~~Indium~~ Indium Targets to substitute for gold.

(13) Mike will continue, and extend his preliminary data to an 8-array configuration. Sung & Mike will discuss the ~~end~~ implementation of temperatures observed from IR into modelling.

Source: https://www.industrydocuments.ucsf.edu/docs/zygj0000

(14) Bruce waymack's data on the variation of resistance with temperature suggests that about 10% variation may be expected in the temperature range that we are interested.

(15) we should receive the cylindrical heaters ~~that~~ needed for determining the thermal conductivity of Beta heater materials.

(16) About 260,000 ± heat sources were produced to test on a linear table. According to Les Thomas, the average strength, average strengths among different batches, the dusting propensity and cracking patterns were checked extensively. Average strength reported was about 35 lb ± 5 lb. Sigma heat sources showed very little dusting as compared to carbon heat sources. RTD's & lightabilities were relatively higher than what we used to observe.

(17) I also discussed about ~~some~~ the voids in the heat sources. Les does not see them as a problem at all.

2020127830

(18) The procedure adopted to solve the void problem is ~~only~~ temporary at best and can't be extended to a real test market. We need to solve this problem. We do not have the expertise either at Stackpole or at PM to fully solve the

Source: https://www.industrydocuments.ucsf.edu/docs/zygj0000

problem. we need to have an understanding of theological properties of the mix. Mohammad indicated that he informed you about it while I was on vacation. we are waiting for further instructions.

(19) we will complete C+Te O work by August/ September while accomadating Beta heater extrusion work and processing of thin sheets for both Beta & Sigma projects.

(20) X-ray has been down since CAD people have taken charge of installing a new version of operating system & the new software. They spent about 2½ weeks to change / delete to install a new system. After installing the new system, they found out that the disk space is not enough to run the programs. They suggested that I obtain permission for another hard disk which they presently have in CAD. Jerry gave his O.K to get the new hard disk & CAD is working on it.

2020127831

(21) Scintag sent a confidentiality agreement form for PM to sign. I showed it to Jerry & Jerry suggested that it be sent to CAD. It has been with CAD & our Patent counsel may have to examine it too.

Source: https://www.industrydocuments.ucsf.edu/docs/zygj0000

(22) Mike will receive his oriel lighting system and a preliminary analysis can be done by May 15th.

(23) With regards to the other lighting procedures, H_2+O_2 is good but unsafe. The torch received by Willie Houck is not a reliable one for lighting. Mohammad suggested ~~a~~ lighting with hot air. Bruce waymack ~~is~~ will attempt to see if it can be used.

(24) A considerable amount of time ~~has~~ was spent ~~looking~~ examining 1326, 1336, 1347, 1353 & 1360 patent drafts. 1336 & 1347 have been finalised from a technical stand point. ~~An~~ An affidavit was ~~sent~~ drafted & sent to me by charlie Smith & Ed Boyer of Fish & Neave to examine, correct and elaborate. ~~They~~ These patents should be complete in about two months.

(25) Patent search on "Fluidized Bed" / on synthesis of carbides & nitrides ~~resulted~~ brought about three patents ~~similar~~ close to ours. We are evaluating them & Fish & Neave & Jim Schardt asked us to list the differences between ~~a~~ the filed patents and our disclosure.

Source: https://www.industrydocuments.ucsf.edu/docs/zygj0000